

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A tunable filter with a wide free spectral range, comprising:

a first collimator;

a second collimator with one end opposed to the first collimator, wherein a high reflectivity layer is coated on the end of the second collimator; and

a micro-electromechanical system-based (MEMS-based) reflector mirror interposed between the first collimator and the second collimators, the reflector comprising a base, an aperture defined on the base, and a multi-layered film with high reflection capability formed on the base and extending over the aperture, wherein the multi-layered film extending over the aperture serves as a curved lens, with an appropriate tilt angle and a high reflectivity lens, whereby and a resonance cavity is defined ~~in a space~~ between the ~~mirror~~ curved lens and the second collimator.

2. (Currently Amended) The tunable filter as claimed in claim 1, wherein the tunable filter ~~using is a heat-actuated type filter actuator has a mirror coated with a multi layer membrane on a concave lens on opposite side of an aperture on a substrate; where and~~ the multi-layered ~~membrane film~~ film is formed with alternate layers of GaAs and AlAs.

3. (Currently Amended) The tunable filter as claimed in claim 1, wherein the tunable filter ~~using is an electrostatic-actuated type filter, actuator has a mirror coated with a multi layer membrane on a concave lens surface on opposite side of an aperture on a substrate; wherein the mirror has a dielectric layer and an electrode layer formed on top of the mirror forming air~~

~~pockets on opposite side of the aperture on the substrate and the concave lens surface of the mirror, and the MEMS-based reflector further comprises a dielectric layer and an electrode layer sequentially formed on the base, both the dielectric layer and the electrode layer have an opening corresponding to the aperture.~~

4. (Currently Amended) The tunable filter as claimed in claim 3, wherein the multi-layered ~~membrane~~ film is formed by alternate layers of GaAs and AlAs.

5. (Currently Amended) The tunable filter as claimed in claim 3, wherein the multi-layered ~~membrane~~ film is formed by alternate layers of TiO_2 and SiO_2 .

6. (Currently Amended) The tunable filter as claimed in claim 1, wherein the first collimator has one end extending towards the second collimator, wherein an anti-reflection layer is coated on the end of the first collimator ~~coating on the lens surface.~~

7-8. Cancelled